AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a dispersed Internet protocol network that supplies communication and data services across components that are electrically attached to a central arbitration server, a method of allowing communication applications to modify call detail records for services rendered on a per record basis by providing generic fields that allow the central arbitration server to collect billing information for any application without having to anticipate it, the method comprising:

the step of initiating a control path connection on a network layer between individual components attached to the dispersed network and at least one central arbitration server for centralized arbitration of service requests received from the individual components;

the step of receiving a service request;

the step of initiating a data path connection between the individual components designated by the service request; and

the step of the central arbitration server initiating a service layer to supply the requested service;

the step of the central arbitration server generating a call detail record for the service request and populating one or more call detail record fields thereof by default; and

the step of the central arbitration server allowing an application corresponding to the requested service to extend the one or more call detail record fields known to the central arbitration server by allowing the application to populate a generic filed within the call detail record with information specific to the requested service ~~adding at least one call detail record field defined~~provided by the application in order to allow the application to add information on a per call detail record basis, wherein the generic field within the call detail record can be populated by a plurality of applications to add information specific to services offered by each of the plurality of applications.

2. (Original) The method as recited in claim 1, wherein the step of receiving a service request further comprises the step of determining whether the requested service will require real-time responsiveness.

3. (Original) The method as recited in claim 1, wherein the step of initiating a control path connection further comprises:

the step of logging into the central arbitration server; and

the step of delivering information concerning available resources associated with the individual components.

4. (Original) The method as recited in claim 1, wherein the step of initiating a control path connection further comprises the step of communicating call control information, DTMF, application specific messages, and application specific call detail information to the at least one central arbitration server.

5. (Original) The method as recited in claim 4, wherein the step of initiating a data path connection further comprises the step of establishing a real time data path between devices to deliver data packets containing voice, facsimile, DTMF tones, silence/background noises, modem data, and video data.

6. (Original) The method as recited in claim 4, further comprises the step of forwarding control path information to a termination device.

7. (Original) The method as recited in claim 4, further comprising:

the step of recording call detail records based in part on received call control messages and application specific messages; and

the step of monitoring the call control messages and other data derived from the control path connection and the data path connection.

8. (Original) The method as recited in claim1, wherein the steps of initiating the data path and control path connections further comprise:

the step of optimizing the routing resources available for the connection, wherein the optimization is determined according to at least one of the following data packet prioritization systems: least cost, failure bypass, load balancing, and class of service; and

the step of determining the necessary bandwidth of the connection to be allocated for the requested service.

9. (Original) The method as recited in claim1, wherein the step of initiating a connection further comprises:

the step of reviewing service tables to determine if a requested resource required by the service request is available; and

if the requested resource is available, the step of locking both sides of connection in preparation for supplying the requested service.

10. (Original) The method as recited in claim 9, wherein the steps of reviewing the service tables and locking both sides of connection is controlled via the arbitration server, such that the requested resource is locked by the arbitration server after verifying availability.

11. (Original) The method as recited in claim 9, wherein the step of locking both sides of connection in preparation for supplying the requested resource is locked by the individual components making the requests.

12. (Original) The method as recited in claim 1, wherein the step of initiating a data path connection further comprises:

the step of encapsulating data into data packets for transmission across the distributed network.

13. (Original) The method as recited in claim 12, wherein the step of encapsulating data further comprises the step of determining a type of data being encapsulated into packets, wherein the type of data is at least one of: voice, DTMF tones, facsimile, background noise, digital data, modem and silence.

14. (Original) The method as recited in claim 12, wherein the step of encapsulating data further comprises:

the step of supplying signaling information about the destination of the packet;

the step of assigning a data type label to the packet;

the step of attaching data payload to the packet;

if the packet will be transmitted through a public network area, the step of encrypting the contents of the packet; and

the step of varying a call detail record based in part upon the data type label.

15. (Currently Amended) A communication and data services network predominately using a packetized transmission protocol and allows communication applications to modify call detail records for services rendered on a per record basis by providing generic fields that allow a central arbitration server to collect billing information for any application without having to anticipate it, the communication and data network comprising:

means for requesting a communication data service;

means for initiating a network layer between attached components of the dispersed network, wherein the network layer initiates a control path for the attached components and a data path for select components designated in the requested communication data service, the means for initiating a network layer comprising (i) at least one central arbitration server (CAS) for centralized arbitration of service requests received from the means for requesting a communication data service, and (ii) a plurality of entry gateways (CE), wherein each CE performs digital signal processing on received signals to generate encoded packets and is connected to the at least one CAS via the control path, wherein the at least one CAS generates a call detail record for the requested communication data service and populates one or more call detail record fields thereof by default, and allows an application corresponding to the requested communication data service to extend the one or more call detail record fields known to the at least one CAS by allowing the application to populate a generic filed within the call detail record with information specific to service ~~adding at least one call detail record field defined~~provided by the application in order to allow the application to add information specific to the requested service provided on a per call detail record basis, wherein the generic field within the call detail record can be populated by a plurality of applications to add information specific to services offered by each of the plurality of applications; and

means for initiating a service layer to supply the requested communication data service comprising at least one central arbitration server (CAS).

16. (Original) The network as recited in claim 15, wherein the means for requesting a communication data service comprises a user terminal, such as a telephone or personal computer.

17. (Canceled).

18. (Previously Presented) The network as recited in claim 15, wherein the means for initiating a network layer connection comprises:

a POTS interface at the user terminal; and

a central office electrically attached to the POTS interface and one CE via a standard PSTN connection.

19. (Previously Presented) The network as recited in claim 15, wherein the means for initiating a network layer further comprises:

a communication proxy server (C4P) electrically attached to the CAS via the control path; and

a local digital switch (C4) being electrically attached to the C4P via the network, the C4 generating dial tone, digital access, and encoding data path information to the user terminal.

20. (Original) The network as recited in claim 15, wherein the packetized transmission protocol is an Internet Media Control Protocol (IMCP) running on the at least one CAS and the plurality of CEs, the IMCP pooling data into categorized packet types exchanged between servers along the available routing resources enabling multiple data path connections to share the same packet and determining the necessary bandwidth allocation for the requested communication data service.

21. (Original) The network as recited in claim 15, wherein the means for initiating a network layer comprises the CAS reviewing service tables to determine if the requested resource is free and if the requested resource is free, allowing origination and termination devices making the resource request to lock both sides of the connection in preparation for supplying the requested resource.

22. (Original) The network as recited in claim 15, wherein the means for initiating a service layer connection comprises a gatelink application protocol interface, which enables applications resident on gatelink servers to analyze the encoded packets generated by the network layer.

23. (Previously Presented) The network as recited in claim 15, wherein the means for initiating a service layer connection directs the data path of the originating and terminating devices.

24. (Currently Amended) A global private packetized communication system with a control path and a real time data path, wherein the communication system allows communication applications to modify call detail records for services rendered on a per record basis by providing generic fields that allow the central arbitration server to collect billing information for any application without having to anticipate it, the communication system comprising:

originating telephone means for transceiving a digitized audio signal;

transmission means for transceiving, categorizing, compressing, and encapsulating digitized audio signals, wherein the transmission means generates a call detail record and populates it with one or more call detail record fields by default, and allows an application corresponding to a requested service to extend the one or more call detail record fields known to the transmission means by allowing the application to populate a generic filed within the call detail record with information specific to the requested service ~~adding at least one call detail record field defined~~provided by the application in order to allow the application to add information on a per call detail record basis, wherein the generic field within the call detail record can be populated by a plurality of applications to add information specific to services offered by each of the plurality of applications; and

receiving telephone means for transceiving a digitized audio signal.

25. (Original) The communication system as recited in claim 24, wherein the originating telephone means comprises a digital telephonic device electrically connected to the transmission means, the digital telephonic device comprising a speaker for converting digital signals into audio signals and a microphone for converting audio signals into digital signals; and wherein the receiving telephone means comprises a second digital telephonic device electrically connected to the transmission means, the second telephonic device also comprising a speaker for converting digital signals into audio signals and a microphone for converting audio signals into digital signals.

26. (Original) The communication system as recited in claim 24, wherein the transmission means for transceiving, categorizing, compressing, and encapsulating digitized voice signals comprises:

at least one central arbitration server to track resource utilization; and

at least one communication engine electrically connected to the at least one central arbitration server via the control path and selectively interconnected with a receiving communication engine via the real time data path, the selectively interconnected communication engines being electrically attached to the originating and receiving telephone means.

27. (Original) The communication system as recited in claim 26, wherein the transmission means further comprises:

a proxy switch server electrically connected to the at least one central arbitration server via a control path and selectively connected to the receiving communication engine via real time data path, the proxy switch server consolidating data packets traveling to the same communication engine to improve the payload to header ratio; and

a local digital switch electrically connected to the proxy switch server and one of the originating telephone means and the receiving telephone means, the local switch generating dial tone and compressing received digital voice signal into encapsulated digitized voice data packets.

28. (Previously Presented) The method as recited in claim 12, wherein the step of encapsulating data further comprises:

the step of aggregating data payloads from one or more originating devices to the packet; and

the step of supplying signaling information about one or more packet destinations.

29. (Previously Presented) The method as recited in claim 28, wherein the step of encapsulating data further comprises:

the step of responding to a service request made by at least one originating device;

the step of linking data payloads from one or more originating devices to one or more terminating devices; and

the step of supplying signaling information about one or more packet destinations.

30. (Previously Presented) The method as recited in claim 29, wherein the step of encapsulating data further comprises:

the step of responding to a service request made by at least one originating device;

the step of disconnecting at least one linked data payload from one or more originating devices to one or more terminating devices; and

the step of supplying signaling information about one or more packet destinations.

31. (Previously Presented) The network as recited in claim 15, wherein the means for initiating a network layer further comprises:

a communication proxy server (C4P) electrically attached to the CAS via the control path; and

a user terminal being electrically attached to the C4P via the network, the user terminal generating dial tone, digital access, and encoding data path information to the C4P.

32. (Previously Presented) The network as recited in claim 20, wherein the plurality of CEs, comprise:

one or more a communication proxy servers (C4Ps); and

one or more user terminals connected through a control layer to the one or more C4Ps.

33. (Previously Presented) The network as recited in claim 20, wherein the plurality of CEs, comprise:

one or more a communication proxy servers (C4Ps);

one or more a local digital switches (C4s) connected to the one or more C4Ps; and

one or more user terminals connected to the one or more C4s.

34. (Canceled)

35. (Previously Presented) The network as recited in claim 22, wherein the plurality of applications resident on gatelink servers connect with at least one CAS.

36. (Previously Presented) The network as recited in claim 35, wherein the plurality of applications resident on gatelink servers connect with one or more CEs.

37. (Previously Presented) The network as recited in claim 36, wherein the one or more CEs comprise at least one user terminal.

38. (Previously Presented) The network as recited in claim 36, wherein the one or more CEs comprise at least one a local digital switch C4.

39. (Previously Presented) The network as recited in claim 36, wherein the plurality of applications resident on gatelink servers connect with one or more a communication proxy servers (C4Ps).

40. (Previously Presented) The network as recited in claim 15, wherein the at least one CAS redirects the data path of the originating and terminating devices in real time with no service interruption.

41. (Previously Presented) The network as recited in claim 15, wherein the means for initiating a service layer connection redirects the data path of the originating and terminating devices in real time with no service interruption.